

Claims

- [c1] 1. A multi component chlorine dioxide producing sanitizing and disinfecting composition comprising:
 - a. a chlorite;
 - b. an activator;
 - c. a secondary active component; and
 - d. a solvent.
- [c2] 2. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 1 wherein the secondary active component has antimicrobial characteristics.
- [c3] 3. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 1 wherein the solvent is water.
- [c4] 4. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 1 wherein the secondary active component is an anionic surfactant, an acid anionic, quaternary ammonium compound, a halogen based compound or an antimicrobial.
- [c5] 5. The multi component chlorine dioxide producing sanitizing and disinfecting composition comprising:

- a. a chlorite;
- b. an activator;
- c. a chloride salt; and
- d. a solvent.

[c6] 6. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 5 where in the solvent is water.

[c7] 7. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 5 including a diluent.

[c8] 8. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 7 wherein the diluent is water.

[c9] 9. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 5 wherein the activator is an acid.

[c10] 10. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 5 wherein the activator is phosphoric acid.

[c11] 11. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 5 wherein the chlorite is an alkali metal chlorite.

- [c12] 12. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 5 wherein the chlorite is sodium chlorite.
- [c13] 13. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 5 wherein the chloride is an alkali metal chloride.
- [c14] 14. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 5 wherein the chloride is sodium chloride.
- [c15] 15. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 7 wherein the components are in amounts to produce an effective quantity of chlorine dioxide in less than five minutes.
- [c16] 16. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 7 wherein the chloride is less than 3500 ppm.
- [c17] 17. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 7 wherein the chlorite is less than 100 ppm.
- [c18] 18. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 7

wherein the activator is less than 5250 ppm.

- [c19] 19. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 7 wherein the molar ratio of the chloride to chlorite is at least 20 to 1.
- [c20] 20. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 7 including a surfactant in effective amounts to clean a surface or system.
- [c21] 21. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 20 wherein the surfactant has biocidal attributes.
- [c22] 22. A method of producing chlorine dioxide with a multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 7 wherein the chlorite, the activator and a chloride are stored separately and mixed immediately before use to produce a chlorine dioxide in effective amounts in less than 5 minutes.
- [c23] 23. A method of producing chlorine dioxide with a multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 5 wherein the chlorite, the activator and the chloride salt are stored in at least two separate areas and passes through metering tips to

an eductor wherein the separate components and a diluent stream are combined to form a predetermined concentration to be applied to a surface or system.

- [c24] 24. A multi component chlorine dioxide producing sanitizing and disinfecting composition comprising:
 - a. a chlorite;
 - b. an activator;
 - c. reducing agent; and
 - d. a solvent.
- [c25] 25. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 24 wherein the solvent is water.
- [c26] 26. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 24 including a diluent.
- [c27] 27. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 26 wherein the diluent is water.
- [c28] 28. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 24 wherein the activator is an acid.
- [c29] 29. The multi component chlorine dioxide producing

sanitizing and disinfecting composition of claim 24 wherein the activator is phosphoric acid.

[c30] 30. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 24 wherein the chlorite is an alkali metal chlorite.

[c31] 31. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 24 wherein the chlorite is sodium chlorite.

[c32] 32. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 26 where in the reducing agent is also antimicrobial in nature.

[c33] 33. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 32 wherein the reducing agent is an iodide salt.

[c34] 34. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 33 including a stabilizing agent.

[c35] 35. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 34 wherein the stabilizing agent is ascorbic acid.

[c36] 36. The multi component chlorine dioxide producing

sanitizing and disinfecting composition of claim 26 wherein the chlorite is present in an amount less than 300 ppm.

[c37] 37. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 26 wherein the reducing agent is present in an amount less than 50 ppm.

[c38] 38. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 26 wherein the pH of the solution is below 5.

[c39] 39. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 26 wherein the pH of the solution is below 3.

[c40] 40. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 26 wherein the components a, b and c are in amounts to produce an effective quantity of chlorine dioxide in less than five minutes.

[c41] 41. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 24 wherein the components a, b and c are in amounts to produce an effective quantity of chlorine dioxide in less than five minutes when diluted.

- [c42] 42. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 26 wherein the activator is present in an amount to produce effective amounts of chlorine dioxide less than 5 minutes.
- [c43] 43. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 26 wherein the molar ratio of the chlorite to reducing agent is less than 50 to 1.
- [c44] 44. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 43 wherein the molar ratio of the chlorite to reducing agent is less than 25 to 1.
- [c45] 45. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 26 including a surfactant in effective amounts to sanitize and clean a surface or system simultaneously.
- [c46] 46. The multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 26 including a surfactant with biocidal attributes in effective amounts to sanitize and clean a surface or system simultaneously.

[c47] 47. A method of producing chlorine dioxide with a multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 26 wherein the chlorite, the activator and the reducing agent are stored separately and mixed immediately before use to produce a chlorine dioxide in effective amounts in less than 5 minutes.

[c48] 48. A method of producing chlorine dioxide with a multi component chlorine dioxide producing sanitizing and disinfecting composition of claim 26 wherein the chlorite, the activator and the reducing agent are stored in at least two separate areas and passes through an eductor wherein the separate components and a diluent stream are combined through at least one metering tip to form a predetermined concentration to be applied to a surface or system.

[c49] 49. A dispensing apparatus for combining a multi component compound to dispense a single end product comprising:

- a. a support member;
- b. at least one connection member connected to the support member;
- c. at least one locking member connected to the support member;
- d. at least one supply member connected to the connec-

tion member;

e. at least one dosing member engaged with at least one supply member; and

f. a dispensing member in fluid connection with the dosing member.

[c50] 50. The dispensing apparatus of claim 49 including a cart member comprising:

a. a platform member;

b. wheel members connected to the platform member;

and

c. at least one handle member connected to the platform member.

[c51] 51. The dispensing apparatus of claim 49 wherein there the at least one connection member arranged to engage at least one container.

[c52] 52. The dispensing apparatus of claim 49 wherein the at least one locking member secures at least one container to the support member.

[c53] 53. The dispensing apparatus of claim 52 wherein the at least one locking member is attached to the support member.

[c54] 54. The dispensing apparatus of claim 51 wherein at least one connection member is engaged with the sup-

port member.

- [c55] 55. The dispensing apparatus of claim 49 wherein at least one supply member is engaged with the at least one container and the support member.
- [c56] 56. The dispensing apparatus of claim 51 wherein the dosing member is at least one eductor.
- [c57] 57. The dispensing apparatus of claim 56 wherein the at least one supply member is engaged with at least one metering tip.
- [c58] 58. The dispensing apparatus of claim 57 wherein at least one metering tip is engaged with at least one educator member.
- [c59] 59. The dispensing apparatus of claim 58 wherein at least one supply member for a diluent is engaged with the at least one eductor member.
- [c60] 60. The dispensing apparatus of claim 59 wherein the at least one eductor member is engaged with the dispensing member.
- [c61] 61. The dispensing apparatus of claim 49 wherein the support member includes at least one attachment member.

- [c62] 62. The dispensing apparatus of claim 49 wherein at least one metering tip is engaged with at least one supply member and at least one eductor member.
- [c63] 63. The dispensing apparatus of claim 49 wherein the locking member is arranged to engage at least one container member.
- [c64] 64. The dispensing apparatus of claim 49 wherein at least two containers are engaged with at least two connection members.
- [c65] 65. The dispensing apparatus of claim 64 wherein the connection members are engaged with the support member.
- [c66] 66. The dispensing apparatus of claim 65 wherein the at least one supply member is engaged with the base member.
- [c67] 67. The dispensing apparatus of claim 66 wherein the supply member is engaged with a metering tip.
- [c68] 68. The dispensing apparatus of claim 67 wherein at least one metering tip is engaged with at least one eductor member.
- [c69] 69. A method of dispensing a multi component compound comprising placing at least one container member

in a locking member in the base member in connection to the support member and engaging a connecting member which is connected to at least one supply member through the support member.

[c70] 70. A method of dispensing a multi component compound of claim 69 wherein a supply member transports components of a container member to at least one metering tip which is engaged with at least one eductor which is in connection with the dispensing member to dispense the single end product.